MAN-MADE CHANGES IN TERRAIN FEATURES IN GERMANY

July - December 1949

1. CHANGES ON THE COAST

Niedersachsen

In spite of all present financial difficulties, land reclamation work on the German north seacoast will continue on a large scale. In the region of the Eastern Ems, southwest of Norden, about 1,000 hectares of the Leybucht will be drained by a dam 4,750 meters long. The fishing village of Greetsiel on the south bank of the Leybucht is one of the terminal points of the dam. The opposite end is on the north shore. Work will be pushed south from this point. Each section has already been built out 2,000 meters. The final gap of 700 meters will be closed by the summer of 1950. Work on the dam will be facilitated by modern methods such as a "spueler", a combination ship and pump. The "spueler" dredges up sand from the bottom and piles it on the end of the dam so that manual labor is necessary only for distributing the sand and shaping the profile of the dam. The dam is 6.5 meters above sea level; the base is 3.5 meters wide and the top 3 meters wide. After the marshland is drained, 1,000 hectares of land will be made available for the settlement of 100 new families. Plans have been made for the drainage of 9,000 hectares of new land along the Jadebusen. This work in the Jadebusen terminates the effectiveness of a law which has existed since 1883. This law prohibited all land reclamation work in the area, in order to protect the approaches to the naval port of Wilhelmshafen.

Repair work in Wursten is especially urgent. Extensive work on the Misselwarder dam near Solthoern is in progress. The dam is not protected by a tidal flat here; the sea reaches it directly. Here it is necessary to construct a breakwater which stretches 500 meters out into the sea, in order to level several encroaching channels. Up to

now 16,000 tons of rubble, 19,500 tons of basalt, and approximately as much of other types of stone have already been used on this project. The work near Solthoern is of particular importance in view of the fact that this is the point where the land extends farthest out into the sea, and the danger that it would break off has been becoming steadily greater. This work has been under way since March 1949.

Replacing the old-fashioned windmills and windmotors, which have customarily been used to drain the marshlands behind the dikes, electric pumping apparatus is being used more and more. In the administrative district of Oldenburg along 17 new electric hydraulic machines, with a pumping capacity of over 1,000 liters per second, have been set up since the last war.

Schleswig-Holstein

(a) Work on Dikes

The relatively limited means of the area have permitted to date only maintenance work, neglected during the war years, although there are altogether some 5,000 hectares of diked land, especially along the Hindenburg dike and on the Hamburg Hallig (island). Protection of coastal areas, repair of dikes, removal of debris cast up by storms, containment of the tidal surge, etc., is under way up and down the entire west coast of the land.

Particularly worthy of mention here is the maintenance work on the endangered section of the sea dike near Lagebuell, and work on the Bottschlotter sea dike. Construction of a break-water has been under way since 1949 near Vollerwiek (administrative district of Eiderstedt), 11 kilometers west of Toenning. The dike has been endangered by a tidal current. The construction of a long stone embankment serves as protection for the Wesselburen polder-land. Conditions are particularly difficult on the western side of Sylt, between Westerland and Wenningstedt. The steel-reinforced wall built after the First World War has

fallen, and damage to the coast has been extensive. Repair work on the perpendicular sea-wall in Westerland has been completed. Before the war a slanting extension of this wall was built of basalt blocks, but it did not suffice to protect the dunes and the cliff edge. Emphasis is also being placed on safety construction in the islands of Pellworm and Nordstrand. Major brack water construction is under way on the island of Hoorn.

(b) Drainage work in the diked area

Near Dagebuell and along the Bottschlotter See several new electric hydraulic machines have been put into operation. As a result of the dredging of new drainage ditches, last winter the Stoertewerker polder-land (Nordfriesland, Kreis Sued-Tondern), was for the first time free of ~~water at high tide~~. Regulation work on the Lecker and Scholmer flood plains will serve to prevent the regular inundation of 36,000 hectares of the lowland areas of Bongsiel and Rutebuell-Suedwesthoern (Kreis Sued-Tondern). (Installation of pumping facilities, construction of reservoirs and drainage ditches). On the Noesse polder on the island of Sylt, the construction of an inland drainage system has been progressing. On the Porrer polder west of Husum the sea-dike sluice has been completed; the extension of the drainage system to improve agricultural conditions is under way. In Hattstedt, which is below sea-level and consequently regularly inundated, construction of a drainage channel and the installation of hydraulic drainage have been undertaken in order to regulate the water supply. Further water control work has been begun in the 45,000-hectare area of the Eider lowlands. A first attempt was made in this in the years 1933-1940 by the damming of the Eider near Nordfeld, but the cumulative accretion of sand on the lower Eider has since worsened conditions, and the area again suffers from extensive inundation. Water control measures have been in progress

since 1947 in the Suederdith marsh area between Brunsbuettel polder and Meldorf. Work is also going on the Vall Moor, 2100 hectares in extent, which is to be drained into the North Sea - Baltic canal by means of a system of hydraulic pumps; this work has been in progress since 1938. Damage to the dike in the Wilster marshes near Hollerwettern on the lower Elbe, resulting from the storm on 10 February 1949, is being repaired in conjunction with the construction of sluices and hydraulic pumping installations. Construction of a large hydraulic pumping installation is under way near Glueckstadt, which will permit planting of fruits and vegetables in what is now marshland in the area of the Rhynschleusen community. Further water control work is under way in the 2000-hectare Boernerau lowlands, where drainage into the Stoer river has been hindered by the tidal action to which this river is subject. On the lower course of the Stoer, between Glueckstadt and Wilster, measures are being taken to provide drinking water, since the ground water here is salty, and the waters of the Stoer have been polluted by industrial wastes.

On the lower course of the Trave, dredging work, postponed by the war, has been carried out in order to eliminate the marshy conditions which have begun to appear in the adjacent lowlands.

The fate of the island of Heligoland is at present determined by its conversion into a practice bombing area. In place of the steep rocky wall around the harbor, there are now large piles of rubble, caused by the demolition of the underground bunkers; however, the renowned "Monk's Head" still stands watch over the island. The statement on the sea charts of the area, "All signal lights on Heligoland are out", means that Heligoland no longer serves as a guide point for ships entering the mouth of the Elbe, nor as a place of refuge in time of storm for the ships of the North Sea fishing fleet.

2. CHANGES IN THE RIVER NETWORK

I. Rhine Region

(a) Upper Rhine (Baden)

Conditions on the upper Rhine south of the Istein promontory pose increasingly difficult problems for local agriculture. Because of the amount of water diverted into the lateral canal, the Rhine itself now has scarcely any significant volume of water. The intake volume of the lateral canal will be increased to 1100 cubic meters per second, leaving less than 800 cubic meters per second flow in the Rhine bed itself. This will create difficulties for the villages of Steinenstadt, Neuenburg, Hienken, Grisheim, and Hartheim, which lie on the lower terrace. In Kirchen and Istein a new central system of water supply must be created to replace home wells. One must reckon with similar developments in additional communities. The agricultural area of the Rhenish lowlands inside the high banks - an area totaling 5000 hectares - is also hard hit.

(b) Neckar (Wuerttemberg-Baden)

Work is progressing on the project designed to make the Neckar navigable from Heilbronn upstream to Stuttgart and Plochingen. In order to straighten the course, work has begun near Heilbronn on extending the Neckar canal, on which the Heilbronn harbor is located, toward the south. The canal will pass to the west of the main Heilbronn railway station, utilizing an old course of the Neckar. Simultaneously, the frequent inundation of the Neckar flood plain will be eliminated. The work will take about two years to complete. Great progress has been made on the construction of the large Hessigheim lock above the loop made by the Neckar at Besigheim. Locks are also being constructed near Lauffen and Heilbronn.

(c) Main (Bavaria)

The Rhine-Main-Danube A.G. is at present extending the Rhine-Main-Danube waterway by the construction of four locks on the Main between

Bamberg and Wuerzburg: near Limbach, river kilometer point 307.2; near Gipfeld, river kilometer point 315.9; near Gossmannsdorf, river kilometer point 267.7; and near Randersacker, river kilometer point 258.4. These locks will primarily serve the river traffic, but they are also connected with power plants (see section 6 below). Discussion concerning the Main-Danube waterway has been under way for some time, but as yet no tangible results are apparent. In this connection it should be noted that the old Ludwig canal has run dry in several stretches, especially near Nuernberg, as a result of war damage. Nothing has yet been decided as to its future fate. The plan to use the canal bed for the construction of a road from Nuernberg to Erlangen has been opposed by the farmers of the Knoblauchland and by industrial plants located on the canal. A stretch of 250 meters on the upper Main near Mainleus has been straightened to prevent the regular inundation of the area and to prevent the crumbling of the banks, which has extended up to 20 meters in places.

(d) Lower Rhine, Ruhr, Emscher, Lippe (Nordrhein-westfalen)

Diversion of the lower Emscher is without doubt the most important of all regulation work under way on the German waterways network. The third mouth of the Emscher was opened on 4 October 1949. The new course is 14 meters long and flows into the Rhine near Stapp, 6.3 kilometers below the old confluence. Altogether 30 new bridges had to be built over the new course of the Emscher. This is the second alteration of the lower Emscher; the first was completed before the first world war. This second alteration became necessary because of the sinking of the ground in the mining region, which caused the gradient of the river to drop. In addition, there was difficulty in controlling the high waters of the Rhine, which could not be prevented by dikes alone from forcing their way into the area of the lower Emscher. The work was started in 1938. The new river bed is diverted from the old course near Oberhausen,

and then makes a sweeping curve to the northwest to the Rhine. The new bed is designed to give the water the greatest possible momentum. The water from the old "middle" course of the Emscher is being pumped into the Rhine. It is expected that this "middle" course of the Emscher will in the future sink even more, for the earth here contains rich deposits of coal, which it will now be possible to mine. The Emscher Society, founded in 1904, has been responsible for all these operations. Without their efforts, the entire Ruhr mining operations, (one may today actually speak of an Emscher mining area) would have been impossible. In the Lippe region near Lunen the it was also necessary to build dikes and to construct drainage pumping stations in order to prevent the area from becoming swampy as a result of the sinking of the land in the mining area. For similar reasons, in the sunken area near Lunen-Schwansbell the dike between the Lippe and the Lippe lateral canal was raised to reduce the threat of floods in this area. In the region of the Rhine-Herne canal the earth has sunk as much as 7 meters. This has resulted in damage to bridges and locks, repair of which must be financed by 9 coal mining companies in the area.

II. Ems Region (Nordrhein-westfalen)

Along the Ems a number of projects have been completed or are in progress. In Kreis Warendorf on the upper Ems work has been completed on a canal 20 kilometers in length which is equipped with many weirs for draining and irrigating the low-lying regions. Further upstream the course of the Ems has been straightened to cut out 10 curves. There is a new dam near Greffen (Kreis Warendorf). In Kreis Wiedenbrueck, the Ems was dredged for a distance of 6.4 kilometers, more sluices and dams were built, and 2 pumping stations were set up to counteract inundation.

III. Weser Region (Niedersachsen)

Work on dikes on the Steinhuder Sea, begun in 1942, has now been

resumed. 10,000 morgen (about 2.1 acres) of land were endangered by floods every year. Inadequate drainage caused the high waters to take long periods of time to drain off. The planned dike will facilitate both drainage and irrigation of the lowland areas adjacent to the Sea.

IV. Elbe Region

In the Elbe region two substantial control projects are planned.

(a) Niedersachsen

Drainage of the Dannenberg marsh has been begun. Extensive damage is done here annually by inundation from the Elbe waters.

(b) Brandenburg

The diversion of the mouth of the Havel river, a project abandoned since 1941, was resumed in the middle of 1949. The Havel will be diverted to enter the Elbe 7 kilometers farther upstream, near Abbendorf; this will protect 7000 hectares of valuable farmland from floods.

V. Danube Region

(a) Wuerttemberg-Baden

The course of the Brenz below Heidenheim was regulated for a long stretch. As a result, land which was previously marshy and threatened by floods may now be put to better agricultural use.

(b) Bavaria

On the Lech, between Schongau and Landsberg, the Bavarian Water Power Company opened two underwater power plants in May and June of 1949. They had been begun since the end of the war. These were the Sperber dam at river kilometer point 116 and the Epfach dam at the river kilometer point 107. Another dam near Finsterau, at river kilometer point 119.7, is almost completed.

On the upper Iser the long planned diversion of the Rissbach waters into Lake Walchen has now been completed by the Bavarian Company.

The channel was opened on 23 October 1949. The Kissbach is dammed up on the Bavarian-Austrian border by a small weir, is guided into the 3647-meter-long Crasberg tunnel, and enters the Isar river and into another tunnel called the Hochkopf, which is 3313 meters long. This second tunnel leads into Lake Walchen. The flow into Lake Walchen reaches an average of 8 cubic meters per second, and is utilized by the Walchen Lake power plant. This diversion of water into Lake Walchen is limited by a decree of the Landtag which provides that the minimum flow of the Isar past Bad Toelz must not fall below a volume of 7 cubic meters per second. One direct consequence of the diversion of the Kissbach is the possibility that the Loisach will overflow its banks because of the increased flow of water from Lake Kochel. It appears necessary to correct the course of the Loisach so as to lower the level of the water. The power plant near Schoenmuehl will then have to be rebuilt, because if the water level is lowered one meter, the turbines will have to be lowered.

A further result of the diversion of the Kissbach is a decree of the Landtag dated 26 June 1947 which provides that a water reservoir be constructed in the upper Isar valley to regulate the flow and supply of water. According to the plans of the highest construction authorities, this reservoir will be built at Sylvanstein, below the village of Fall, and will also be large enough to furnish current for Bavaria.

In May of 1949, the city of Munich began construction of a new power plant called the Echinger plant, near river kilometer point 79.2. The new plant is located on the Isar below Moosburg, and will be connected with the already existing Uppenborn plant. This new plant will utilize water diverted into a canal. The surface canal was completed before the war, and there now remains the building of the power house and the 1000-meter-long underwater [sic] canal.

Construction of two more power plants was begun on the Isar below Landshut by the Bavaria Power Company in January 1949. These are the Altheim plant at river kilometer point 71, and the Niederaichbach plant at river kilometer point 60. These power plants are weir plants, with long lateral dams.

The Inn company is building a weir power plant on the Inn river near Neuoetting (river kilometer point 91.1). This plant will provide current for general public use and will also serve the Toeging aluminum plant. Work on this plant was begun in October 1948.

On the Saalach river near Freilassing (river kilometer point 2.5), construction of a power plant begun in 1941, but abandoned during the war, is now almost complete. The plant also serves as a support point for two bridges which cross upstream, - a road bridge and a railroad bridge.

3. CHANGES IN AGRICULTURAL AND FORESTRY LAND UTILIZATION

Changes in use of the land for agricultural and forestry purposes usually come about slowly, for sudden transformations violate the natural order of things and are normally avoided. Most such sudden transformations are brought about by man, and they usually have a harmful effect on the natural order of things. This is the case with the excessive exploitation of forests in the last two decades. The overall effect of this exploitation will have to be analyzed at a later date. Reliable material is not now available for an estimate covering the whole of Germany. There follows an account of only a few isolated developments.

Schleswig-Holstein

Large-scale land cultivation projects are under way in Schleswig-Holstein. In Kreis Rendsberg, for example, on the Haaler lowlands, an area of 1500 hectares of meadow and moor will be drained and converted into productive pasture lands.

The Geest region of Schleswig is gravely threatened by wind erosion. A systematic program of building windbreaks has been begun on the Joldelund area which is to serve as a model for further efforts in this direction in the Geest area (previously without windbreaks).

Niedersachsen

In the region between Cuxhaven and Bremerhaven a system of windbreaks will be set up in the form of shelter belts and hedges. The shelter belts will be strips of trees 15 to 20 meters wide, and the hedges will be 1 to 2 meters wide. The first efforts in this direction will be begun in the municipalities of Frensch-Berensch and Holssel, in Kreis Wesermuende.

An attempt has been made to improve the sandy soil in the region of Meppen with silt obtained from the North Sea. The results of this first attempt were favorable. The oat harvest has been two and one half times the average. The yield of vegetables and fodder crops has also shown a gratifying increase.

Nordrhein-westfalen

On the basis of this experience large stretches of pasture land in the Senne will now be improved with North Sea silt obtained by dredging harbors.

A very substantial modification, which is planned for implementation over a period of years, but which has already made considerable progress, is the transformation of cleared hills in the Siegerland into forested and arable land. Plans already underway call for the transformation of 5000 to 8000 hectares of brushwood into forest land, and 2000 to 3000 hectares into crop land within the next ten years. Exploitation of the cleared hills is generally considered unprofitable; in comparison with other forest land the yield is reckoned as 1:6. In Kreis Olpe similar action is in progress.

In connection with the plans for wind shelter belts, which will

be worked out by the regional planning board of Nordrhein-westfalen, the Ministry for Food, Agriculture, and Forestry has also started to establish wind shelter belts in Kreis Dueren. In an area heretofore almost treeless, plantings will be made in strips 3 to 8 meters wide, principally poplars with an undergrowth of hornbeam. Further experimental planting projects are planned.

Hessen

Ruedesheim mountain, one of the most famous vineyard areasof the Rhine district, 215 morgen of which was turned into a field of craters by bomb damage during the war, is at present being leveled off again. 6200 cubic meters of vineyard walls must be rebuilt, and 265 bomb craters filled in. The total loss in production in recent years, shared by some 50 Ruedesheim wine growers, has been approximately 7 million Deutsche marks.

Wuerttemberg-Baden

In North Wuerttemberg the Schuckhof settlement area on the borders of Blaufelden, Blaubach, Brettenfeld, Emmertsbuehl, and Engelhardshausen, was taken from Prince Hohenlohe-Oehringen during the course of the land reform and given over to the Wuerttemberg land reform commission for division into small settlements. Of this area, all of which was wooded, 40 hectares have now been cleared. All this area is in need of drainage.

On the Rhine plain in North Baden, in the Pfinz-Saalbach area, large stretches of former waste land ~~have been~~ are being reclaimed for agricultural purposes. One of the first attempts involves the reclamation of 1500 hectares.

Baden

The cultivation of the soya bean in the upper Rhineland, although not strictly a part of land reclamation, has been in progress for 10 years, and the experience gained may be important as the basis for

future changes. Research in the state seed selection station in Nunningen near Freiberg shows that even in unfavorable years - for example, the cool, damp summer of 1948 - all planted varieties ripened. Even a late frost of -4 degrees Celsius failed to cause the young plants any damage.

Bavaria

At Ehrenbuerg near Forchheim peasants exiled from their homes in the Banat have reintroduced the cultivation of grapes, long neglected in this area.

4. CHANGES IN THE STRUCTURE OF AGRICULTURAL SETTLEMENTS

(a) New Villages

In spite of the limited space for farming settlements, new settlements are again being constructed. Although but few new villages are being built, they merit special attention.

Niedersachsen

In the middle of the Ems moor in the Wittmarsch state moor region, a settlement consisting exclusively of 860 refugees, from Silesia, Pomerania, and East Prussia, has developed. The barracks of the former Fuechtenfeld prison were at their disposal. The first transport of refugees arrived in 1946; by 1949 there had developed an integrated village with numerous gardens, several shops, repair shops, a school for 200 children, and a dentist. The livelihood of this village is earned in the nearby Ems oil fields, to which the workers are carried in buses.

Nordrhein-westfalen

Numerous new settlements have been built or are under construction in the region of the war-torn state forest near Kleve. 1500 hectares within the peripheral area of the 8000-hectare forest are being utilized to set up three villages and 270 peasant farms. Two-thirds of this area will be settled by refugees, and the remaining third by local people.

1100 hectares have already been made arable, and rye has been harvested from 200 hectares. In the first sector 128 farms have been marked off, of various sizes: 50 farms have 60 morgen of land, 25 farms have 30 morgen, and 53 farms have 15 morgen. Thus from the beginning there has been a mixed structure so far as operating size is concerned. Small farms of from 1 to 6 morgen, which will provide only part of the owner's income, have been planned for the villages. Each village is to have a church, school, town meeting hall, pastor's house, the necessary trade shops, doctor, etc. These settlements were partially financed by the farmers' organizations, and partly by the settlers' own means. State credit formed the basis. The first two years are to be rent-free; the following two years only half the rent will be paid; and from the fifth year on the full rent of 26 Deutsche marks per morgen will be due. 6500 hectares of the old state forest area will be reforested.

Hessen

By far the most ambitious new village is the Hungarian-German settlement of St. Stefan on the Griesheim Sand, 5 kilometers west of Darmstadt. 19 two-family houses line both sides of the wide street--an unusual sight in the west. They are already occupied. Twelve more will be built in the coming year. 350 refugees from the Bachka and the Banat are now engaged in laying out their fields on the sandy soil of the former military training ground, with only the simplest means at their disposal. Altogether the peasants have been given 167 hectares of land. 45 families have been alloted 3 hectares, and 16 families 2 hectares. Some of the settlers must seek supplementary income. The sandy soil is suitable for the planting of sunflowers, rye, and potatoes. The dunes have been planted with grape vines. It is hoped that the first "Griesheim Sand" wine will be produced next year. At the beginning of December a number of

cattle in gestation arrived from the new world--the gift of American farmers. It is planned that these cows will form the basis for future cattle-raising. Several trade shops, a grocery store, an inn, and a saw-mill under construction are all signs of a growing community. It is noteworthy that the community of Griesheim is demanding the return of the land on which the village is located, which had been incorporated by the town of Darmstadt.

Bavaria

30 peasant families driven from their homes have been settled on the former military training grounds of Hohenfels near Parsberg. Financial aid and aid in the procurement of equipment for the first ground-breaking have been supplied by the Bavarian state.

(b) Land Settlements and Land Reform

Gradually the initial results of land reform in several of the Laender are becoming observable.

Schleswig-Holstein

In Schleswig-Holstein 53 owners of large estates were forced to give up 30,000 hectares of land. This included 25,000 hectares of usable land. 4,000 families will be settled on this area. The land reform area in Schleswig-Holstein made available by breaking up the large estates is limited for the most part to the hilly land in the east (with the exception of the district of Angeln). The greater part of the land has already been settled by the Schleswig-Holstein Land Society or the Holstein Settlers' Society, or is being settled. It is worthy of note that in nearly all cases settlement is tied up with a complete reorganization of the rural areas. The road net in areas previously owned by large landowners is underdeveloped, and schools and other central facilities are either nonexistent or inadequate. In several regions the agrarian reform has been influenced

by the traditional Schleswig-Holstein system of land rentalon a time basis.

In east Holstein the following settlements have been completed or are in the process of formation:

Kreis Ploen: already completed: Schoenbocken (24 farm holdings, 6 gardeners' holdings, 26 workers' holdings, 16 settlements), Gottesgabe, Panker (village on rented land); under construction: Buchwald-Klein Dosenbek (462 hectares, 17 farm holdings, 16 rented farms), Stoefs, (387 hectares, 20 agricultural holdings, 5 settlements), Wilhelminenhof, (36 farm holdings), Rethwisch (580 hectares, 39 farm holdings, 7 settlements), Theresienhof, (382 hectares, 34 farm holdings), Breitenstein (253 hectares, 12 agricultural holdings).

Kreis Lauenburg: already completed: Hakendorf (215 hectares, 17 agricultural holdings), Neu-Horst (453 hectares, 37 agricultural holdings, 6 settlements), Kehrsen, (512 hectares, 37 agricultural holdings), Sophiental (373 hectares, 35 agricultural holdings, 14 settlements), Neuguester (145 hectares, 12 agricultural holdings), Lanken (36 hectares, 2 agricultural holdings).

The following settlement projects are in progress:

Kreis Eckernfoerde: Harzhof (4 farm holdings).

Kreis Rendsberg: Emkendorf (170 hectares, 4 farm holdings, 1 leased farm, 20 settlements).

Kreis Eutin: Kreutzfeld (148 hectares, 13 agricultural holdings, 26 settlements).

Kreis Segeberg: wensin (122 hectares, 13 farm holdings, 10 settlements).

Kreis Stormarn: Wolkenwehe (264 hectares), Jersbeck.

Kreis Oldenburg in Holstein: Hansuehn (225 hectares, 23 agricultural holdings, 30 settlements), Neu-Testorf (342 hectares, 21 farm holdings), Karlshof (271 hectares, 13 farm holdings), Rethwisch (209 hectares, 13 agricultural holdings), Lensahner Hof (270 hectares, 32 agricultural

holdings, 60 settlements), Nienrade (420 hectares, 42 agricultural holdings), Meischenstorf (209 hectares).

Wuerttemberg-Baden

In Wuerttemberg-Baden only 4000 hectares of the land which had to be surrendered by the large estates could be made available to new settlers. 6000 hectares were occupied by small peasant farms on lease, and the peasants cannot be deprived of this land either now or in the future, lest their existence be endangered. 4000 more hectares must be reserved for the cultivation of seed grain and for seed experimentation, particularly necessary in view of the falling off of imports from the East Zone. There are 40,000 peasant families making demands for the remaining 4000 hectares. The new settlement program in Wuerttemberg-Baden can therefore only provide small plots of land for supplementary income. The first of these settlements has been set up in Kreis Pforzheim and is called Koenigsbach. It includes 22 two-family houses, each with 10 ares /area=100 square meters/ of land. The total cost of one plot is 14,000 Deutsche marks. The monthly rent charged the settlers is 62 Deutsche marks, 25 of which can be covered by renting out the upper story. A church group of settlers called Neue Heimat (New Homeland) has begun construction of a number of purely residential settlements in North Baden (Bauland and Odenwald) in addition to the rural settlements. These include Hettingen, Buchen, Wallduern, Hoepfingen, Rippberg, Seckach, Osterburken, Eubigheim, Krautheim, Mudau, Schlossau, Hettigenbeuren, and a few smaller settlements.

Baden

Land Baden will face its most important settlement problem in the future, since the first 10,000 refugees have only jsut arrived from Schleswig-Holstein and Niedersachsen. In the spring, more than 38,000 additional settlers are expected.

Bavaria

In Bavaria 25,000 hectares have up to now been made available for settlement. 74,000 people have applied for settlement in this area: 47,000 are full-time farmers, and 27,000 are small and part-time farmers. To satisfy their needs one would require an area of 500,000 hectares. Of the 25,000 hectares available, the large landowners have contributed only 6,000 hectares; they raised objections to handing over the 32,000 hectares required of them. 18,000 hectares were German military property which were usable for agricultural purposes, and were turned over for settlement by the occupying Power; 1600 hectares were state forest and waste land. 22,000 hectares of the 25,000 hectares available have already been settled. There were created: 764 full-time farms, 80 small peasant farms, 362 truck gardens, 3196 part-time farming settlements, 2348 residential settlements, and 9800 small garden plots.

Since the fall of 1946, 1237 hectares of moor and 1412 hectares of uncultivated mineral land have been in use in Bavaria. On the basis of this project, the Bavarian Land Institute for the Development of Moor Land, which celebrated its 50th anniversary this year, has set up 50 peasant farms, 4 agricultural workers' settlements, 19 gardening settlements, 49 part-time farming settlements, and 259 owner-occupied settlements. Many more settlements are planned.

A new settlement has been developed in the previously uncultivated moor near Bad Aibling through the hardihood of an old family of colonists from the Banat. This clan of 64 persons settled in Kolbermoor to create for themselves a new life here. Following the communal cultivation of 500 morgen of moor, the land will be divided among the six families, in farms of 42 "Tagwerk" each.

The larger part-time farming settlements which should be mentioned include: Tuessling-Moermoosen (Kreis Altoetting), with 136 dwelling units, and 68 settlers' plots; St. Afra-Mering (Kreis Friedberg) with

160 dwelling units and 80 houses; Kedwitz (Kreis Lichtenfels) with 50 dwelling units; and Grossostheim-Ringheim (Kreis Aschaffenburg) with 60 dwelling units and 30 houses.

5. CHANGES IN MINING AND EXTRACTION OF NATURAL RESOURCES

Hessen

German mining activity in recent years has centered around extensive drilling for petroleum, and the opening up of brown coal deposits.

I. Brown Coal and Peat

Hesse

In Hesse, in the areas of Kleinkrotzenburg near Offenbach and Rueckers in Kreis Fulda, mining of new deposits of brown coal was begun. Production permits were issued to the Burghasungen brown coal mines in Kreis Wolfshagen, the Iffland mining company in Buchenau, Kreis Huenfeld, and the Freudenthal Union at Oberkaufungen in the Landkreis of Kassel. Further projects were promoted by state aid: brown coal extraction at Oberkaufungen, Gundesburg, in the Schwalm, near Streitberg and Stielberg, and several small mines near Schluechtern in Kreis Buedingen and in Kreis Witzenhausen.

Bavaria

The extraction of brown coal in Bavaria was also aided by special credits in the region of Schwanenkirchen near Deggendorf. This mine is estimated to contain over 12 million tons; at present 300 tons are mined daily.

Niedersachsen

In Annafehn in the Ems region a new peat-coking plant is in operation. A similar plant has been in operation in the neighborhood of Gifhorn in Neudorf-Platendorf since 1948.

II. Petroleum and Shale Oil

Niedersachsen

Further successful drilling has been carried out in the Ems oil fields. The well "Dahlum-Nord 1" was brought in at a depth of 903 meters in September 1949; it yields 7 cubic meters daily. Another well was brought in at a depth of 1117 meters in November 1949 near Scheerhorn (Gresch. Bentheim). The unions Elwerath and Wintershall plan to build a large refinery on the Dortmund-Ems canal north of Lingen with a capacity of 400,000 tons to process the increasing yield of the Ems fields. A pipe-line is also planned, and in part begun, to carry the oil from the Ems field to the Dortmund-Ems canal. The pipe-line will be 50 kilometers long and will have an annual capacity of some 900,000 tons. The following sections are planned for the pipe-line: Emlichheim-Osterwald, Ruehlertwist-Osterwald, Georgsdorf-Osterwald, and Osterwald-Holthausen.

The Niedersachsen oil field on the Aller is also the site of successful new borings. A well in the "Kuhlenberg" field in the neighborhood of Haeningsen near Celle was brought in at a depth of 1210 meters in October 1949. This well yielded 8 tons of high-grade petroleum in its first few days. Near Eldingen, 19 kilometers northeast of Celle, a well was brought in at a depth of 1600 meters. Initial production was 25 cubic meters daily. Test shafts have also been sunk in Kreis Uelzen. A well on the lower Aller, "Suderbruch 1," has been brought in at a depth of 2000 meters. The first output, in August 1949, reached a volume of from 30 to 40 cubic meters per day.

Near Bad Bergen in south Oldenburg, during a search for petroleum, at a depth of 220 meters a deposit of dry fuel gas was struck. The value of this deposit cannot yet be estimated.

Schleswig-Holstein

The "Hohenhorn 12" well near Hamburg, at the south edge of the Sachsenwald, was brought in August 1949. Between 2.2 and 6.5 cubic

meters of oil are obtained daily at a depth of 800 to 835 meters. In the petroleum region of Heide-Meldorf a well at the sea dike west of Meldorf has been brought in. In spite of air-pockets, 30 cubic meters of crude oil were being obtained daily in December 1949.

Thueringen

New shafts have been sunk in Thueringen in search of oil. The Nordhausen people-owned mine-construction and drilling company has been seeking petroleum in the abandoned Hebra-Lohra potash mine in the Landkreis of Nordhausen.

South Germany

Extensive prospecting for petroleum has been begun in the entire molasse region north of the Alps in Baden, Wuerttemberg-Hohenzollern, and Bavaria.

Baden

Two large shafts have been sunk in the molasse region of Lake Constance near Meersburg.

Wuerttemberg-Hohenzollern

The project for industrial exploitation of the oil reserves of the Lias oil shale deposits near Frommern (Kreis Balingen), has finally been abandoned, because it is economically unprofitable. A plant built during the war was to have exploited this deposit by a distillation process. The Dotternhausen cement plant (Kreis Balingen) which produces cement from the Lias rock, is still in operation and utilizes its oil-bearing waste material for the production of wash oil and lacquer solvents.

The plants set up during the last year of the war to obtain oil and gas by open distillation of oil shale in so-called "kilns" have been shut down and dismantled since the end of the war. They covered more or less extensive level areas, mostly farmland, which now is needed for cultivation.

III. ORE MINING

Nordrhein-Westfalen

According to a report of the Nordrhein-Westfalen Landgeological office, new ore deposits have been discovered in the region of Herne, Wulfen, and Celde in Westfalen. These are predominantly silver-bearing lead and zinc ores. Similar deposits are already being mined in the Christian Levin mine near Essen and in the Auguste Viktoria mine near Huels. The annual yield of the Christian Levin mine is about 36,000 tons with 11 percent lead content.

Near Maubach (southwest of Dueren) lead deposits similar to those of Mechernich are being opened up. At present, about 400 tons of lead-bearing rock are being mined /[redacted]7.

Baden

The plant of the Otavi Mining and Railway Company in Blumberg, Kreis Donaueschingen, which during the war processed vanadium from the ore mined by the Boggereze AG., has been dismantled. Germany has been forbidden by the Potsdam Agreement to produce vanadium. The buildings still stand, and so there is a possibility of moving in other industries, which would provide work for the numerous unemployed. A new plant is experimenting with a new process for improved exploitation of Blumberg iron ore. If this new process proves profitable, the Karlsruhe ore will be smelted in a new blast furnace which will be built.

It has been known for several decades that in the marble deposits of the Kaiserstuhl there are deposits of niobium, a metal used in processing steel. Just since 1939 the IG Farben Company in Opnau mined and processed between 80,000 and 90,000 tons of this koppite marble. Now a new company, the Kaiserstuhl Niobium Mining GmbH., has been set up in partnership with a French firm, with 70 percent participation by the Baden government. Niobium has recently been utilized as an alloy metal in the construction of radar and radio equipment.

IV. STONES AND EARTHS

Rheinland-Pfalz

In Kreis Daun an attempt will be made to use local deposits of volcanic tufa to produce a light building stone similar to pumice stone.

6. CHANGES IN ELECTRIC POWER AND WATER SUPPLY

I. Power Plants

(a) Electric Power Plants

In the expansion of electric power facilities the southern regions, with their extensive water power resources, occupy first place.

Bavaria

In addition to the diversion of the Rissbach into Lake Walchen, (see section 2), work on which was started in 1947 and is now completed, a number of fairly large power plants are under construction at present. Only the largest power plants are mentioned here: The Sperber and Epfach underwater power plants were completed in 1949. They are located on the Lech River between Schongau and Landsberg in south Bavaria. The two plants together have a joint capacity of 13,900 kilowatts and produce 64 million kilowatt hours annually. Another plant will shortly be completed near Finsterau. It has a capacity of 7200 kilowatts, and will produce 35 million kilowatt hours annually. Construction of the Ellgau power plant 9 kilometers south of the confluence of the Lech and the Danube has been begun (capacity 9250 kilowatts).

In the Isar region, the diversion of the Rissbach into Lake Walchen, now completed, will increase the capacity of the power plant there, because the water of the Rissbach will increase the supply of water available. On a yearly average, 90 million more kilowatt hours of current will be available for peak consumption (an increase of 50 percent in total annual capacity). The waters of the Rissbach will also enable the Niedernach power plant and other plants downstream

to generate 20 million additional kilowatt hours.

The installed capacity of the new power plant at the Schinger dam on the Isar below Mossburg will be 16,500 kilowatts, and the annual output will be 80 million kilowatt hours. The plant is designed to provide additional electric power for Munich. The plant is located close to the through road from Munich to Landshut, and this obliges the operating corporation to devote special care to the appearance of the plant. The Altheim and Niedereichbach power plants on the lower Isar below Landshut are still under construction. Upon their completion, they will be able to produce 31,800 kilowatt hours jointly. They will be able to supply 150 million kilowatt hours of current annually; their facilities will be used for supply of electric current to the public through the Bavarian Utilities AG.

The Neuoetting power plant on the Inn has been under construction since 1946. Primarily, it will supply the Toeging aluminum plant with current. It will have a capacity of 20,000 kilowatts, or 124 million kilowatt hours annually. The capacity of the Ahnhofen power plant near Muehldorf on the Inn was augmented by 2.5 to 4.5 million kilowatt hours with the completion of a storage reservoir.

The Saalach power plant near Freilassing is almost completed. The plant will generate 3700 kilowatts, and have an annual capacity of 19 million kilowatt hours. This current will all go to the city of Salzburg. The building is completed, and the machinery partially installed. It will soon be in operation.

In conjunction with the improvement of the Main River by the Rhine-Main-Danube AG, 4 power plants are being built in north Bavaria with a total capacity of 7800 kilowatts, and an annual output of 63 million kilowatt hours. These plants are located between Wuerzburg and Bamberg: in Randersacker near Wuerzburg, in Gossmannsdorf near Ochsenfurt, in Wipfeld south of Schweinfurt, and in Limbach northwest of Bamberg. One will be ready in 1950, and the others in 1951 and 1952.

Their current will go to the Bavarian power network.

Wuerttemberg-Baden

The construction of the new Enz power plant in Bietigheim has been completed. The capacity has been quadrupled: the output is expected to average 2.8 million kilowatt hours.

The Hessigheim dam is being built in connection with the channeling of the Neckar river. A power plant is to be built here with an installed capacity of 3000 kilowatts and an annual output of 16.7 million kilowatt hours.

(b) Steam Power Plants

Bavaria

The Schwandorf steam power plant of the Bavarian Utilities AG. has increased its capacity by the installation of a tapping turbine with a capacity of about 25 Mw. The turbine will be put in operation in the winter of 1950-1951. The large power plant of the Franken AG. in Nuernberg (Gebersdorf) is enlarging its boiler-house to accommodate a high-pressure boiler with a capacity of about 20 Mw. A new tapping turbine is also being installed. The total increase in capacity will be 32 Mw. Simultaneously a 100-kv outdoor installation will be erected to transfer the current from this plant to the high-tension network of the Bavarian Utilities AG. It will be put into operation in the winter of 1950-1951. The city of Munich has enlarged the boiler-house of its steam power plant on Isartal Street in order to install an additional boiler which will increase the regular capacity of the plant by 16 Mw. The steam power plant in Bayreuth has been enlarged. A steam power plant (thermal plant) with a capacity of 12,000 kilowatts has been put into operation in the Nuernberg gas works. Another steam power plant is located in Penzberg (upper Bavaria). Upper Bavarian pitch coal is used for fuel.

Berlin

The coal power plant "west" in Berlin-Spandau, construction of

which was begun to ensure the power supply of west Berlin during the blockade, and the materials and machinery for which were brought in in part by the air-lift, is now completed.

II. WATER RESERVOIRS

Nordrhein-westfalen

The largest dam in Europe - the Sorpe dam - which was damaged in an air attack during the war, has now been fully repaired. The Sorpe dam, built in 1935, dams up 70 million cubic meters of water in an area of 330 hectares. The Ruhr Union has resumed construction on the Verse dam after an interruption of several years. This dam is located near Luedenscheid and will dam up 32 million cubic meters of water. Investigation has been started to determine the necessity for constructing a new dam on the Bigge River between Attendorn and Olpe.

Thueringen

In the region of the southern Harz mountains an ambitious project has been started with the construction of the first dam. The Krebsbach River, which regularly inundates large areas of the Golden Aue, will be dammed up at Iberg in a basin capable of holding 1.3 million cubic meters of water. For this purpose the Krebsbach must be diverted about 100 meters through an underground bed. (6 additional dams are planned for the southern edge of the Harz region).

Sachsen

In the uranium mining region in the upper Erzgebirge there have been difficulties with the water supply, which is provided by two dams. Near Cranzahl on the upper course of the Zschopau, a dam is being built to supply the area of the town of Annaberg with water. The dam is 425 meters long and 37 meters high. When it is completed at the end of 1950, it will be able to store 2 million cubic meters, and to deliver 85 liters per second. A second dam is under construction near Sosa on the Bockau (a tributary in the Zwickau Valley). It will

relieve the Schm... ...g-Schneeberg area of a water shortage. A concrete-reinforced stone wall will dam the valley here. Its dimensions will be as follows: 60 meters high, 200 meters long, and 45 meters thick at the base. The resevoir will hold 6 million cubic meters of water.

III. TRANSMISSION OF POWER

(a) High Tension Lines

Bavaria

To equalize the peak loads over comparatively great distances, there has been added to the extensive net of high-tension lines running between northwest Germany, Bavaria, and central Germany a new 220-kv line between Bavaria and west Germany. The line runs from the transformer plant at Ludersheim near Altdorf in the vicinity of Nuernberg, which was built in the years 1939-1941, southward past Nuernberg and through Steigerwald and Spessart to Aschaffenburg. From there it runs to the Kelsterbach transformer plant near Frankfurt, where it connects with the network of the Rhein-westfalen electric power plant and with the 100-kv line to Borken (district of Kassel). This line was begun in early 1948, and put in operation on 1 December 1949 by the Bavarian plant (the Bavarian Electric Power Supply Company). The new line serves to carry the coal-produced current to the south in the winter months; in the warmer months it carried the water-produced current to the north. The high-tension line replaces the power connection between the upper Bavarian water power plants and the brown coal power plants in the areas of Halle and Merseberg, which was broken by the zonal bounderies. The new line is 197 kilometers long, and has 742 high-tension poles. An aluminum-steel cable with a cross-section measuring 450 square millimeters was used for the line. The so-called "long rod" insulators, produced by the Siemens company, were used for the first time in this project.

The following important new high-tension lines are being built:

1. A new 110-kv collecting line is being built in the Main valley to eliminate the bottleneck in feeding the output of the 7 main power plants between Lengfurt and Aschaffenburg into the 110-kv network of the Bavarian Utilities company. The 10.4-kilometer-long 110-kv line between Lengfurt and Breitenbrunn was completed in 1947.

The reconstruction of the 110-kv double line between Aschaffenburg and Klingenberg was begun in July 1948, and the first strand was completed in May 1949. Construction of a new double line (110 kv) from Grossheubach to Freudenberg was begun on 1 May 1949.

2. Construction of a new 110/20 kV transformer plant at Pirach by the Bavarian Utilities Company and of a 100-kV connecting line to the Landshut-Toeging line. The project will serve as a basis of power supply for southeast Bavaria. It will guarantee the supply of current, and will improve the maintenance of the voltage on the medium-voltage nets of this region.

3. Construction of a 110-kV transmission line between Rosenheim and Landshut for the German Bundesbahn (railroad). This line will serve the following purposes: it will complete the ring of the lines from the Lake Walchen power plant which feed into the electric power line of the railway; it will shorten the line over which power is obtained from Austria, and thus diminish the amount of power lost in transit; it will provide a new power line for the transmission of electric power from the Penzberg railway power plant to relieve the overloaded line between Kochel (Lake Walchen power plant) and Pasing. This [redacted] line, begun in 1943, is now again under construction.

4. Construction of a new 110-kV current transmission line for the German Bundesbahn between Surheim and the Saalach power plant. Because of the progressive drying up of Lake Saalach, the supply of electric

current for the railroad in the Reichenhall region has to be supplemented even in the wintertime, and so the Saalach power plant will be linked to the general railway network. The new line runs from the 110-kV Traunstein-Steinsdorf railway power line to the Saalach power plant.

Wuerttemberg-Baden

A 110-kV line will be built from the steam power plant at Marbach to the transformer plant in Wendlingen.

(b) Gas Pipe Lines

Long-distance gas pipe lines save the cost of constructing additional gasworks. The gas pipe line built in 1938 from the Ruhr region to south Germany is being supplemented at present by the addition of new compressors in the compressor station in Niederschelden in the Siegerland. The gas pipe line runs as far as Darmstadt. In 1948, 167.2 million cubic meters of gas were pumped through it.

Bavaria

Since November 1949, the town of Neumarkt in Oberpfalz has been supplied with gas from the Nuernberg gasworks through a 35-kilometer pipe line. The line runs through Feucht near Nuernberg along the Nuernberg-Regensburg Highway.

As far as Feucht the line has a capacity of about 10 million cubic meters per year; at Neumarkt its capacity is about 3-4 million per year.

IV. WATER PIPE LINES

Wuerttemberg-Baden

The laying of a second conduit on the Herbrechtlingen-Heidenheim water supply line has been under way for some time. This improvement is essential for the assurance of an adequate water supply for central Wuerttemberg.

Niedersachsen

A new group water supply project has been begun in order to improve

the water supply on the north slope of the Weserrgebirge. It will supply the towns of Bueckeburg, Bad Eilsen, and the neighboring area with water.